Clean Set of Amended Claims

1. (Twice Amended) A mobile data communication system for a wireless data communication, comprising:

a plurality of mobile stations;

a plurality of base stations and base station controllers for transferring a signal transmitted from said mobile stations and a signal transmitted to said mobile stations in a predetermined service area;

a mobile switching center for detecting a service option included in the signal transmitted from the base stations and base station controllers and for executing a circuit data service or a packet data service according to the detected service option; and

at least one mobile data network interworking unit for establishing a traffic channel of a mobile data path and a call between a calling party mobile station and a called party mobile station when said mobile switching center performs the circuit data service, wherein first and second data paths are established between the mobile switching center and the least one mobile data network interworking unit.

2. (Twice Amended) The mobile data communication system claimed in claim 1, wherein said mobile switching center comprises:

a mobile connection control module for detecting the service option included in the signal transmitted from said base station and base station controllers and for generating a switching signal controlling an interface connection;

a mobile data path connection control module for controlling the connection to a mobile network data path according to the switching signal of said mobile connection control module;

a public network data path connection control module for controlling the connection to a public network data path according to the output signal of said mobile data network interworking unit; and

a trunk connection control module for transmitting an output signal of said public network data path connection control module or said mobile network data path connection control module to a public switched telephone network or to a second mobile switching center according to the switching signal of said mobile data path control module or said public network data path connection control module.

3. (Twice Amended) The mobile data communication system claimed in claim 1, wherein said mobile station comprises a data terminal coupled to a mobile terminal .

10. (Thrice Amended) A wireless data communication method in which at least one mobile switching center including a mobile connection control module, a mobile data

path connection control module, a public network data path connection control module and a trunk connection control module are connected with at least one data network interworking unit by a first data path and a second data path, comprising:

inputting an identification number of a called party mobile station;

establishing a first call from a calling party mobile station to a mobile data network interworking unit and then establishing a first traffic channel;

calling the called party mobile station at the mobile data network interworking unit;

establishing a second call from said called party mobile station to the mobile data network interworking unit when a data response comes from said called party mobile station and then establishing a second traffic channel after the mobile data path connection module informs the public network data path connection control module of a normal state of a first data path between a mobile switching center and the mobile data network interworking unit;

establishing a call between the mobile switching center and the mobile data network interworking unit through a second data path; and

connecting said first and second traffic channels through at least one modem of the interworking unit.

13. (Twice Amended) The wireless data communication method claimed in claim 10, wherein said steps for establishing the first call comprises:

deciding a service option included in the signal transmitted from said calling party mobile station; and

requesting said data network interworking unit to establish a call when said service option is to request a circuit data communication service.

21. (Thrice Amended) A wireless data communication method in which at least one mobile switching center having a mobile connection control module, a mobile data path connection control module, a public network data path connection control module and a trunk connection control module is connected with at least one data network interworking unit through a first data path and a second data path, comprising:

a) inputting an identification number of a called party mobile station;

b) establishing a first traffic channel after establishing a first call from a calling party mobile station to a first mobile data network interworking unit having at least one modem through a first mobile switching center;

c) calling a called party mobile station controlled by a second mobile switching center from said first mobile data network interworking unit through said public network data path connection control module and said trunk connection control module;

d) establishing a second traffic channel after a second call from said called party mobile station to a second mobile data network interworking unit having at least one modem is established when said called party mobile station responds and said mobile data path connection module informs said public network data path connection control module of a normal state of a first data path;

e) establishing a call between said public network data path connection control module and said second mobile data network interworking unit after said mobile data path connection control module informs said public network data path connection control module of the completion of channel establishment when said second traffic channel is completely established;

f) releasing the traffic channel between said mobile connection control module and said public network data path connection control module when the call establishment between the public network data path connection control module and said second mobile data network interworking unit is completed; and

g) connecting said public network data path connection control module with the trunk connection control module.

27. (Amended) A mobile data communication system, comprising:

at least one base station and base station controller, configured to receive and transfer a signal from at least one mobile station and a signal transmitted to the at least one mobile station in a prescribed service area;

a mobile switching center (MSC) configured to detect a service option included in the signal transmitted from the at least one base station and base station controller and to execute a circuit data service or a packet data service according to the detected service option; and

at least one mobile data network interworking unit coupled to the MSC to establish a traffic channel of a mobile data path and a call between a calling party mobile station and a called party mobile station when said mobile switching center performs the circuit data service, wherein first and second data paths are established between the MSC and the least one mobile data network interworking unit.

28. (Amended) The system of claim 27, wherein the at least one mobile data network interworking unit comprises:

a main processing circuit configured to form the traffic channel of the mobile data path and the call between the calling party mobile station and the called party mobile station;

a circuit data processing circuit configured to transmit the called party identification number to the main processing circuit if the main processing circuit is performing a circuit data service;

a packet data processing circuit configured to transmit the called party identification number to the main processing circuit if the main processing circuit is performing a packet data service;

an interface control section, configured to provide an interface between the main processing circuit and the circuit data processing circuit;

at least one modem; and

a modem controller configured to control an operation of the at least one modem according to a modem control signal of the interface control section.

31. (Amended) The system of claim 27, wherein the mobile switching center comprises:

a mobile connection control module to detect a service option included in the signal transmitted from the at least one base station and base station controller, and to generate a switching signal to control an interface connection;

a mobile data path connection control module, configured to control a connection to a mobile network data path according to the switching signal of the mobile connection control module;

a public network data path connection control module, configured to control a connection to a public network data path according to an output signal of the mobile data network interworking unit; and

a trunk connection control module, configured to transmit an output signal of one of the public network data path connection control module and the mobile data path connection control module to one of a public switched telephone network and a second mobile switching center according to the output signal of the mobile data path control module or the public network data path connection control module.

32. (Twice Amended) An interworking unit for a wireless communication system, comprising:

a data path connector to couple over at least first and second data paths to a mobile switching center;

a main processor to form a traffic channel of a mobile data path between a first mobile terminal and a second mobile terminal when a circuit data service option is detected by the mobile switching center from a base station;

a circuit data processor, coupled to the main processor and configured to analyze a signal transmitted from the first mobile terminal if a protocol between the first mobile terminal and the second mobile terminal is normally executed, and to transmit an identification number from the second terminal to the main processor; and

a switching circuit, configured to selectively switch a connection between the circuit data processor and the data path connector in accordance with a control signal from the main processor, wherein the circuit data processor comprises at least one modem.

33. (Amended) The mobile data communication system claimed in claim 32, wherein the main processor comprises:

a mobile data path control module coupled to establish a link with the mobile switching center;

a circuit data control module configured to control the exchange of traffic data information between the first mobile terminal and a circuit data processor;

a modem control module configured to control the at least one modem; and

a public network data path control module coupled to establish the link with the mobile switching center.

34. (Amended) The mobile data communication system claimed in claim 32, wherein the circuit data processor comprises:

an interface controller to provide an interface between the main processor and the circuit data processor; and

a modem controller coupled to control an operation of the at least one modem according to a modem control signal provided by the interface controller.

35. (Amended) A method of performing wireless data communications, comprising:

inputting an identification number of a first mobile station;

establishing a first call from a second mobile station to a said mobile data network interworking unit and then establishing a first traffic channel;

calling the first mobile station at the mobile data network interworking unit;

establishing a second call from the first mobile station to the mobile data network interworking unit when a data response comes from the first mobile station and then establishing a second traffic channel after a mobile data path connection module informs a public network data path connection control module of a normal state of the first data path;

establishing a call between a mobile switching center and the mobile data network interworking unit through the second data path; and

connecting the first and second traffic channels through at least one modem of the mobile data network interworking unit.

C. **Please add new claims 38-49 as follows:**

38. (New) The system of claim 1, wherein the at least one mobile data network interworking unit comprises a module for providing circuit service and a module for providing packet based service, and wherein different protocol stacks are used for packet service and circuit service.

39. (New) The system of claim 38, wherein the at least one mobile data network interworking unit comprises at least one module for connecting a first protocol to a second protocol for interface with the interworking function.

40. (New) The method of claim 1, wherein the first data path is a mobile data path and the second data path is a public network data path.

41. (New) The mobile data communication system claimed in claim 6, wherein the data terminal and the mobile terminal are integrated to form a single device.

42. (New) The system of claim 27, wherein the at least one mobile data network interworking unit comprises:

a data path connector to couple to a mobile switching center;

a main processor to form a traffic channel of a mobile data path between a first mobile terminal and a second mobile terminal when a circuit data service option is detected by the mobile switching center from a base station;

a circuit data processor, coupled to the main processor and configured to analyze a signal transmitted from the first mobile terminal if a protocol between the first mobile terminal and the second mobile terminal is normally executed, and to transmit an identification number from the second terminal to the main processor; and

a switching circuit, configured to selectively switch a connection between the circuit data processor and the data path connector in accordance with a control signal from the main processor, wherein the circuit data processor comprises at least one modem, and wherein the main processor comprises:

a mobile data path control module coupled to establish a link with the mobile switching center;

a circuit data control module configured to control the exchange of traffic data information between the first mobile terminal and a circuit data processor;

a modem control module configured to control the at least one modem; and

a public network data path control module coupled to establish the link with the mobile switching center.

43. (New) The system of claim 27, wherein the at least one mobile data network interworking unit comprises:

a data path connector to couple to a mobile switching center;

a main processor to form a traffic channel of a mobile data path between a first mobile terminal and a second mobile terminal when a circuit data service option is detected by the mobile switching center from a base station;

a circuit data processor, coupled to the main processor and configured to analyze a signal transmitted from the first mobile terminal if a protocol between the first mobile terminal and the second mobile terminal is normally executed, and to transmit an identification number from the second terminal to the main processor; and

a switching circuit, configured to selectively switch a connection between the circuit data processor and the data path connector in accordance with a control signal from the main processor, wherein the circuit data processor comprises at least one modem, and wherein the circuit data processor comprises:

an interface controller to provide an interface between the main processor and the circuit data processor; and

a modem controller coupled to control an operation of the at least one modem according to a modem control signal provided by the interface controller.

44. (New) The system of claim 27, wherein the at least one mobile data network interworking unit comprises a module for providing circuit service and a module for providing packet based service, and wherein different protocol stacks are used for packet service and circuit service.

45. (New) The system of claim 44, wherein the at least one mobile data network interworking unit comprises at least one module for connecting a first protocol to a second protocol for interface with the interworking function.

46. (New) The method of claim 27, wherein the first data path is a mobile data path and the second data path is a public network data path.

47. (New) The system of claim 32, wherein the interworking unit further comprises a module for providing circuit service and a module for providing packet based service, and wherein different protocol stacks are used for packet service and circuit service.

48. (New) The system of claim 47, wherein the interworking unit further comprises at least one module for connecting a first protocol to a second protocol for interface with the interworking function.

49. (New) The method of claim 32, wherein the first data path is a mobile data path and the second data path is a public network data path.